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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/512,104	10/21/2004	John D. Jacobs	49301/HAC/P234	6845
23363	7590	07/28/2005		
CHRISTIE, PARKER & HALE, LLP PO BOX 7068 PASADENA, CA 91109-7068			EXAMINER LEON, EDWIN A	
			ART UNIT 2833	PAPER NUMBER

DATE MAILED: 07/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

## Office Action Summary

Application No.

10/512,104

Applicant(s)

JACOBS, JOHN D.

Examiner

Edwin A. León

Art Unit

2833

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11-28 is/are allowed.
- 6) ☒ Claim(s) 1,2 and 5-10 is/are rejected.
- 7) ☒ Claim(s) 3 and 4 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 October 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 10/21/04.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 and 5-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shaffer et al. (U.S. Patent No. 4,245,875) in view of Stoner (U.S. Patent No. 4,865,558). With regard to Claims 1 and 5-7, Shaffer et al. (Figs. 1-5) discloses a cartridge (14) comprising: a nonconductive body (52) having a first end and a second end and a plurality of openings (54, 58) extending from the first end to the second end; an electrically conductive common contact member (64) having a female contact end (Fig. 4) and an opposite contact end (Fig. 4), wherein the female contact end is disposed in and the opposite contact end extends from a corresponding one of the plurality of openings, and wherein; a plurality of electrically conductive noncommon contact members (66) each having a female contact end (Fig. 4) and an opposite contact end (Fig. 4), wherein each female contact end is disposed in and each opposite contact end extends from a corresponding one of the plurality of openings in the body.

However, Shaffer et al. doesn't show the female contact end has an outer diameter that is smaller than an inner diameter of the corresponding body opening in

which it is disposed to allow for a lateral movement of the female contact end within the body, each female contact end comprises at least one longitudinal slot along at least a portion of its length to form a split sleeve, such that each female contact end comprises at least two moveable fingers, each female contact end comprises a spring that biases the at least two moveable fingers of each female contact end towards each other, each female contact end comprises a groove that receives a sealing element, such that the sealing element forms a seal between the female contact and the corresponding body opening in which the female contact is disposed.

Stoner (Fig. 4) discloses a similar connector (Fig. 4) having a female contact end (78) with an outer diameter (Fig. 4) that is smaller than an inner diameter (80) of the corresponding body opening (74) in which it is disposed to allow for a lateral movement of the female contact end within the body, each female contact end comprises at least one longitudinal slot (between 26) along at least a portion of its length to form a split sleeve (20), such that each female contact end comprises at least two moveable fingers (26), each female contact end comprises a spring (20) that biases the at least two moveable fingers of each female contact end towards each other, each female contact end comprises a groove (Fig. 4) that receives a sealing element (Fig. 4, in the back of 76), such that the sealing element forms a seal between the female contact and the corresponding body opening in which the female contact is disposed.

Therefore, it would have been obvious to one with ordinary skill in the art at the time the invention was made to modify the cartridge of Shaffer et al. by including the female contact end having an outer diameter that is smaller than an inner diameter of

the corresponding body opening in which it is disposed to allow for a lateral movement of the female contact end within the body, each female contact end comprises at least one longitudinal slot along at least a portion of its length to form a split sleeve, such that each female contact end comprises at least two moveable fingers, each female contact end comprises a spring that biases the at least two moveable fingers of each female contact end towards each other, each female contact end comprises a groove that receives a sealing element, such that the sealing element forms a seal between the female contact and the corresponding body opening in which the female contact is disposed as taught in Stoner in order to minimize potential stubbing during the mating of the parts of the connector.

Regarding the limitation "for removably connecting to a cable useful to electrically connect a tow vehicle to a towed vehicle", it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex. parte Masham*, 2 USPQ2d 1647 (1987). Therefore, this limitation has been given little patentable weight.

With regard to Claim 8, Shaffer et al. (Figs. 1-5) discloses the second end of the body comprises a projection (60) extending therefrom, and wherein the projection comprises a keying lug (60).

With regard to Claim 9, Shaffer et al. (Figs. 1-5) discloses the body comprises a length having a front end portion (60) adjacent to the first end of the body and a major portion (62) extending from the front end portion of the body to the second end of the

body, and wherein the front end portion has an outer diameter that is larger than an outer diameter of the major portion of the length.

With regard to Claim 10, Shaffer et al. (Figs. 1-5) discloses the opposite contact end of the common contact member is a male contact (22) and wherein the opposite contact ends of each of the noncommon contact members is a male contact (22).

3. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shaffer et al. (U.S. Patent No. 4,245,875) in view of Stoner (U.S. Patent No. 4,865,558) in further view of Howard (U.S. Patent No. 6,743,025). The combination of Shaffer et al. and Stoner discloses the claimed invention as shown above except for the first end of the body forming a plug-type moiety in conformity with SAE J560 and wherein the second end of the body forms a socket-type moiety substantially in conformity with SAE J1560.

Howard discloses a similar connector using moieties in conformity with SAE J560. See Column 6, Lines 37-39.

Therefore, it would have been obvious to one with ordinary skill in the art at the time the invention was made to modify the cartridge of Shaffer et al. and Stoner by having the moieties in conformity with SAE J560 as taught in Howard in order to make the cartridge more versatile.

***Allowable Subject Matter***

4. Claims 11-27 are allowed.

5. Claims 3-4 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The references fail to teach, disclose, or suggest, either alone or in combination, regarding Claim 3, an end cap attached to the first end of the body, wherein the end cap comprises openings that correspond to and are aligned with each of the plurality of body openings, and wherein each end cap opening is smaller in diameter than an outer diameter of each female contact end to prevent each female contact end from axially extending beyond the first end of the body, regarding Claim 11, a housing within which the first insulative body is disposed with the cable extending outwardly from one end of the housing, wherein the cartridge is removably mounted in an open opposite end of the housing so that the opposite ends of the cartridge contacts engage the first contacts of the first insulative body and establish a connection between the first and second moieties of the first electrical connector within the housing, regarding Claim 22, removing the load bar from the terminals, such that the overmolded insulative body forms a first moiety of an internal first connector of the plug assembly; providing a removable cartridge having a first end that forms a second moiety of the internal first connector and a second end that forms a socket-type moiety of a second electrical connector and in combination with the rest of the limitations of the base and intermediate claims.

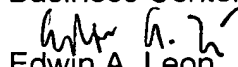
**Conclusion**


6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Schweihs (U.S. Patent No. 3,614,709), Brown, Jr. et al. (U.S. Patent No. 6,450,833), Zubko (U.S. Patent No. 6,054,779) and Bernat et al. (U.S. Patent No. 6,773,285) disclose connectors having cartridges, contact members and cables.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edwin A. León whose telephone number is (571) 272-2008. The examiner can normally be reached on Monday - Friday 10:00-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paula A. Bradley can be reached on 571-272-2800, extension 33. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Edwin A. León  
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July 23, 2005

  
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PRIMARY EXAMINER